the expansion behaviour of an inactive region (8, 9) which are electrode free, adjoins the active region (10) up to the inactive head region (8) and up to the inactive foot region (9), respectively.

2. Piezoceramic multilayer actuator according to Claim 1, **characterised in that** in the transition region (11) between the active region (10) and the inactive head region (8) and the inactive foot region (9), the electrode-to-electrode spacing (12, 13, 14, 15, 16, 17) between the inner electrodes (3) increases up to the head region (8) or foot region (9) of the actuator (1).

3. Piezoceramic multilayer actuator according to Claim 1 or 2, **characterised in that** the increase in the spacing (12, 13, 14, 15, 16, 17) of the inner electrodes (3) in the transition region (11) up to the head region (8) or foot region (9) of the actuator (1), starting from the spacing (12) of the inner electrodes (3) in the active region (10), is effected stepwise in a sequence of natural number.

4. Piezoceramic multilayer actuator according to Claim 1 or 2, **characterised in that** the increase in the spacing of the inner electrodes (3) in the transition region (11) up to the head region (8) or the foot region (9) of the actuator (1), starting from the spacing (12) of the inner electrodes (3) in the active region (10), is effected stepwise in a geometric progression.

5. Piezoceramic multilayer actuator according to Claim 1 or 2, **characterised in that** the increase in the spacing of the inner electrodes (3) in the transition region (11) up to the head region (8)

or the foot region (9) of the actuator (1), starting from the spacing (12) of the inner electrodes (3) in the active region (10), is effected stepwise according to a logarithmic scale.

6. Piezoceramic multilayer actuator according to one of Claims 1 to 5, **characterised in that** the number of steps for increasing the spacing (12, 13, 14, 15, 16, 17) between the electrodes (3) is matched to the difference of the shrinkage and expansion behaviour between the active region (10) and the adjacent passive region (8, 9).

7. Piezoceramic multilayer actuator according to one of Claims 1 to 5, **characterised in that** the maximum spacing (17) between the last two electrodes (3) in the transition region (11) is up to 2 mm.

8. Piezoceramic multilayer actuator according to Claim 6, **characterised in that** the maximum spacing (17) between the last two electrodes (3) in the transition region (11) lies approximately between 0.1 mm and 1 mm.

9. Piezoceramic multilayer actuator according to Claim 1, **characterised in that** the respective transition region (18) between the inactive head region (8) and the inactive foot region (9) consists of a modified piezoceramic material, whose shrinkage and whose expansion behaviour lies within the shrinkage and the expansion behaviour of the active region (10).

10. Piezoceramic multilayer actuator according to Claim 9, **characterised in that** the properties of

the material in the transition region (11), in particular its sintering behaviour, can be influenced by doping with impurity atoms of the materials of the inner electrodes (3).

11. Piezoceramic multilayer actuator according to Claim 10, **characterised in that** the doping of the material in the transition region (11) exists in a concentration that is produced by natural diffusion in the active region (10) at the boundary between an inner electrode (3) and the ceramic material (2).

12. Piezoceramic multilayer actuator according to Claim 10 or 11, **characterised in that** the doping of the material in the transition region (11) is effected with silver.